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## Summary

- This chapter presents comparisons between shift workers and non shift workers across a range of health and lifestyle factors. Shift working was defined as working 'outside the hours of 7am to 7pm in your (main) job'. Shift workers are exposed to greater health risks compared with those who work standard hours, particularly when their working patterns disrupt the circadian rhythms (internal clock).
- Among the working population, men were more likely than women to report that they did shift work (33% of men and 22% of women).
- Shift working was most prevalent in the 16-24 age group, and declined with age for both men and women. Almost half of men and over a third of women aged 16-24 did shift work compared with fewer than a third of men and a fifth of women aged 55 and over.
- The prevalence of shift work varied significantly by equivalised household income, being highest in the lowest two income quintiles (42-43% among men, 27-28% among women, compared with 21% and 19% respectively in the highest income quintile). Similarly, the proportion of men and women in shift work was highest in the most deprived quintile compared with the least deprived.
- Both men and women in shift work were more likely than non shift workers to report fair or bad health.
- Shift workers were more likely than non shift workers to have a limiting longstanding illness; they were also more likely to have more than one longstanding illness.
- Shift workers were more likely than non shift workers to be obese. This is reflected in higher mean body mass index (BMI) measurements, higher proportions classified as obese, and greater proportions with a very high waist circumference.
- Men and women in shift work were more likely than non shift workers to have diabetes (10% of both men and women in shift work, compared with 9% and 7% respectively of those not working shifts).
- Current cigarette smoking prevalence was higher among shift workers than non shift workers, with a larger difference among women than men. 28% of men in shift work currently smoked compared with 23% of men who did not do shift work. The equivalent figures for women were 26% and 15% respectively.
- The proportion of both men and women who drank alcohol in the last year was slightly smaller among shift workers (84% of men, 81% of women) than among those who did not work shifts (88% and 83% respectively).
- Daily fruit and vegetable consumption was lower among shift workers than non shift workers. Men in shift work ate an average of 3.3 portions compared with 3.6 for non shift workers. Among women the equivalent means were 3.6 and 3.8 respectively. Shift workers were also slightly less likely than non shift workers to meet government recommendations of eating five or more portions per day.

## 6.1 Background

### 6.1.1 Introduction

This chapter presents comparisons between shift workers and non shift workers across a range of health and lifestyle factors. Generally, shift work entails a work pattern under which different groups of workers succeed each other in the same job at the same site. At the beginning of the shift work, the work of the previous shift is taken over and at the end of the shift, the work is handed over to the next shift. Shift work often involves working during unsocial hours in the early morning, at night or during the weekend and the weekly rest days do not always coincide with typical rest days (i.e. weekends). These shift patterns are common in work places which remain open and working or providing services beyond standard working hours.<sup>1</sup>

Shift work may involve a variety of working patterns and schedules, sometimes with a regular shift worked long term, and sometimes with rotating patterns. Examples include:

- work during the afternoon, night or weekend, typically with periods of the work schedule outside standard daytime hours
- extended work periods of 12 hours or more, often associated with compressing the working week
- rotating hours of work
- split shifts, where work periods are divided into two distinct parts with several hours break in between
- overtime
- standby/on-call duties.<sup>1</sup>

In comparison, standard daytime hours may be considered as a work schedule involving an activity during the day, commonly for a period of seven or eight hours between 7.00 am and 7.00 pm. There are usually two periods of work, one in the morning, and the other in the afternoon, separated by a lunch-time break.

A 2011 report indicated that the number of people in employment who reported doing shift work in the UK peaked in 2000 with around 15% of the working population working shifts for 'most of the time'. Since then, numbers stabilised, with around 14% of the working population (3.6 million people) in 2009 doing shift work 'most of the time.'<sup>1</sup>

### 6.1.2 Health risks of shift work

Shift workers are exposed to greater health risks compared with those who work standard hours. Particularly those who work at night may be at risk of ill health because shift work can disrupt the circadian rhythms (internal clock) by interfering with the production of melatonin, disturbing sleep and causing fatigue.<sup>2,3</sup> The risk of experiencing fatigue is also related to workload, potentially an issue for those working shifts longer than the traditional working day. Of particular concern are those suffering chronic fatigue as this has been associated with a number of long-term health problems.<sup>4</sup>

Though circadian rhythms can change gradually most people are resistant to the abrupt changes in the sleep/wake cycle that are required by shift-work schedules. Behaviours that rely on a regular cycle such as digestion, alertness and sleep are disturbed. Other health risks driven by disrupted/alterd circadian rhythms are cardiovascular problems such as hypertension or coronary heart disease, gastrointestinal conditions and increased susceptibility to minor illnesses.<sup>3,4,5</sup>

Research suggests a relationship between shift work and obesity and an increased risk of suffering from Type 2 diabetes. The highest risk group are men on rotating shifts as their circadian rhythms are constantly distorted and their bodies fail to produce appropriate insulin levels as a result.<sup>3,4,5,6</sup>

There is also evidence that shift workers may be at greater risk of experiencing mental health disorders such as anxiety and depression. Results from longitudinal analysis of the General Health Questionnaire (GHQ) used on the British Household Panel Survey show that

men were more likely to be affected by night shift work while women were more likely to experience mental health problems when working in varied shifts.<sup>6</sup>

Studies have found nutrition of night shift workers to be poorer than that of day workers. This is due to lack of availability of healthy foods (canteens and many other food outlets are shut) for those working at night as well as different meal patterns compared to day workers.<sup>4</sup> Other lifestyle behaviours may also lead to poorer health outcomes among shift workers, for instance in relation to smoking,<sup>7</sup> alcohol consumption<sup>8</sup> and physical activity.<sup>9</sup>

Detailed guidelines on reducing health risks of shift work for employers and employees are provided by the Health and Safety Executive.<sup>10</sup> This includes providing regular free health assessments, guidance on improving shift schedules and ensuring a variety of tasks.

## 6.2 Methods and definitions

### 6.2.1 Methods

In the 2013 HSE, participants aged 16 years and over who were in employment were asked whether they worked in shifts either 'most of the time', 'occasionally' or 'never'. Those who answered either 'most of the time' or 'occasionally' were then asked which type of shift work they were doing. Shift work was defined in the question as 'work outside the hours of 7am to 7pm in your (main) job'.

For most of the analysis in this chapter, participants were grouped into shift workers (who reported that they did shift work 'most of the time' or 'occasionally') and non-shift workers. Comparisons between shift workers and non shift workers across a range of health and lifestyle factors are age-standardised, so that any differences in age profile are taken into account in the comparisons.

### 6.2.2 Types of shift work

Participants were shown a card which listed types of shift work, and asked to indicate which they worked; if they worked more than one type they were asked to give the most frequent type. Definitions of the types of shift work were as follows; and participants were also able to describe other patterns that did not fit within these definitions.

**Three-shift working** – the day is divided into three working periods – morning, afternoon and night. This kind of shift work usually, but not always, involves one or more weeks of mornings, followed by one or more weeks of afternoons, followed by one or more weeks of nights.

**Continental shifts** – this is a continuous three-shift system that rotates rapidly e.g. three mornings, then two afternoons, then two nights. Usually there is a break between shift changes.

**Two-shift system with earlies and lates or double day shifts** – normally two shifts of eight hours each, e.g. 0600-1400 and 1400-2200. Shifts are usually alternated weekly or over longer intervals.

**Split shifts** – these are full shifts divided into two distinct parts with a gap of several hours in between. Used in industries where peak demands are met at different times of the day e.g. catering, passenger transport and service industries.

**Morning shift** – if this is full-time, most commonly 0600-1400. This code is used if the morning shift is the only shift worked or worked part time during the morning.

**Evening shift** – if this is full-time, most commonly 1500-2400. Also used for a part-time shift 1700-2100 or 1800-2200. Part-time evening shifts are usually called twilight shifts.

**Night shift** – if this is full-time, most commonly 1800-0600, and usually continuing after midnight. This code is used only for permanent night work.

**Weekend shift** – this code is used for work during Fridays, Saturdays, Sundays (0600-1800), when there is no other work.

Examples of ‘other’ types included being available when work was required (perhaps in relation to specific events such as concerts or exhibitions), or other irregular patterns.

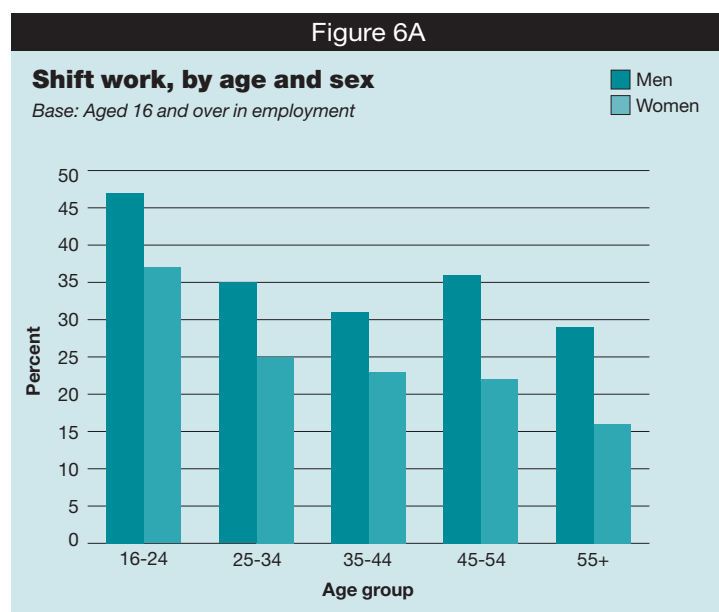
## 6.3 Shift work prevalence

### 6.3.1 Shift work by age and sex

Among the working population, men were more likely than women to report that they did shift work, that is work outside 7am to 7pm (33% of men and 22% of women). 22% of men worked in shift patterns most of the time, while 11% worked in shifts occasionally. 14 % of women did shift work most of the time and 8% occasionally.

The proportion of those who did shift work was highest in the 16-24 age group, and generally declined with age both for men and women, as Figure 6A shows. Almost half of men and over a third of women aged 16-24 did shift work compared with fewer than a third of men and fewer than a fifth of women aged 55 and over.

Table 6.1, Figure 6A



### 6.3.2 Shift work by region

Figure 6B shows the prevalence of shift working (age-standardised) by region. There was generally a higher proportion of the working population working shifts in northern than southern regions. London had among the lowest levels of shift working. Table 6.2, Figure 6B

### 6.3.3 Shift work by income and deprivation

Shift work varied significantly by equivalised household income for both men and women, as shown in Figure 6C. Prevalence was highest in the lowest two income quintiles.

Table 6.3, Figure 6C

The pattern was similar for the Index of Multiple Deprivation (see Figure 6D). The proportion of men and women in shift work was highest in the most deprived quintile compared with the least deprived.

Table 6.4, Figure 6D

### 6.3.4 Types of shift work

People in shift work were asked about the type of shift work they did in their main job.

Among both men and women, the most common types of shift work reported were the two shift system (15% of men, 18% of women), or sometimes days and sometimes nights (14%

Figure 6B

**Shift work, by region and sex**

Base: Aged 16 and over in employment

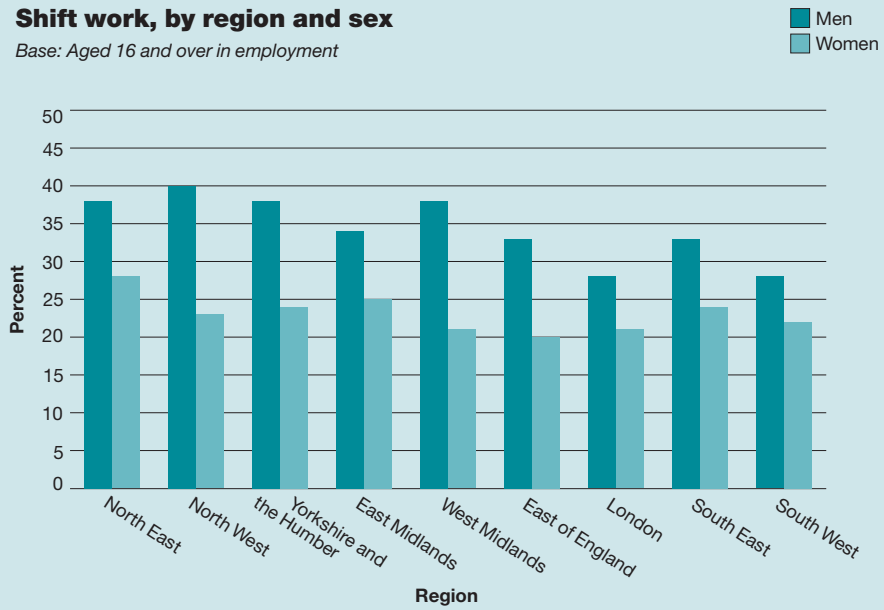


Figure 6C

**Shift work, by equivalised household income and sex**

Base: Aged 16 and over in employment

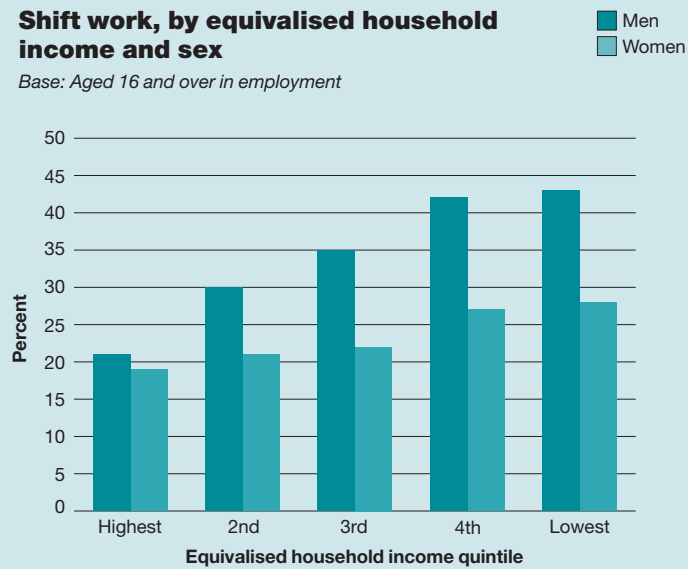
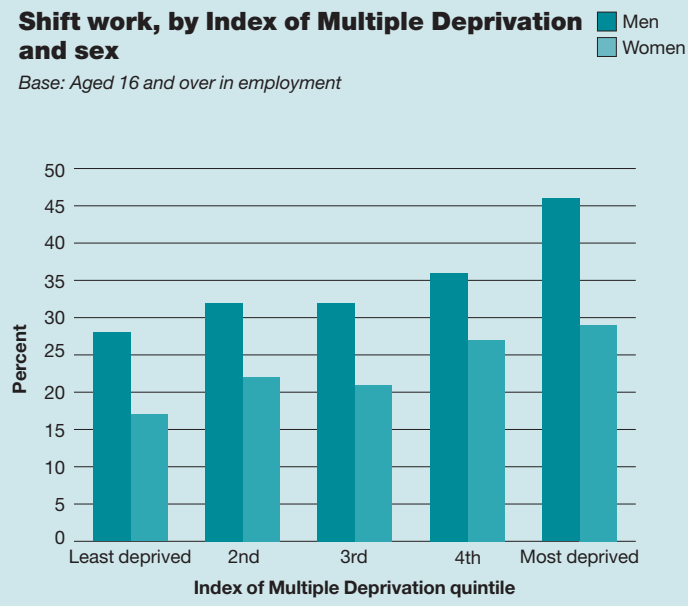


Figure 6D

**Shift work, by Index of Multiple Deprivation and sex**

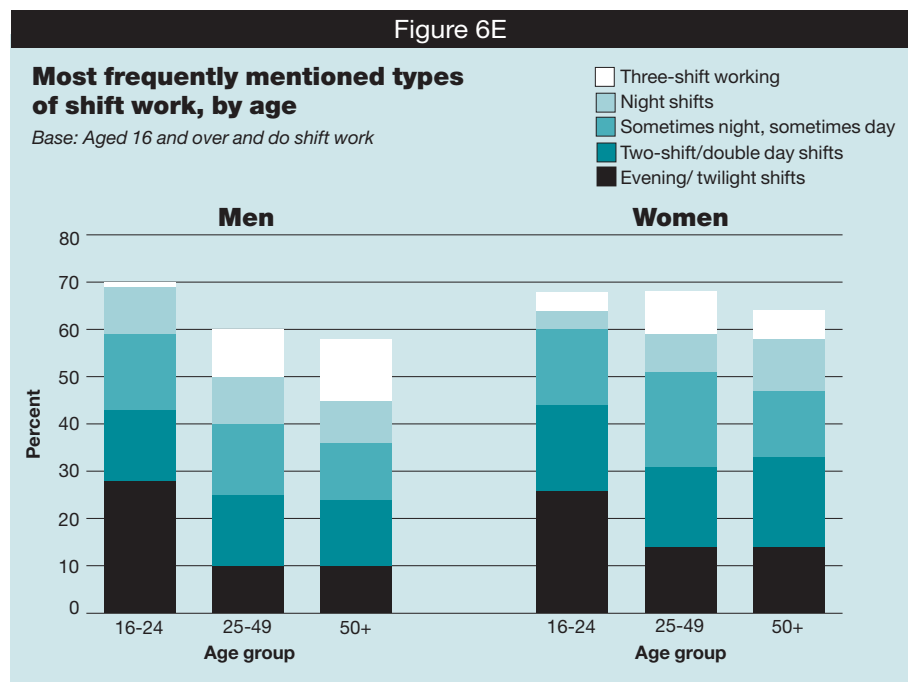
Base: Aged 16 and over in employment



and 17% respectively), while women were slightly more likely than men to mention evening or twilight shifts (16% and 12% respectively). Night shifts (10% and 8%) and three-shift working (10% and 7%) were the next most frequently reported.

Figure 6E shows the most frequently mentioned types of shift work by age group. Evening and twilight shifts were considerably more common among the youngest age group, with more than a quarter of both men and women aged 16-24 working this pattern. Correspondingly, the youngest age group was less likely than older shift workers to report three shift working. There was less variation across age groups for the other categories, though younger women were less likely than their older counterparts to work night shifts.

Overall 23% of men and 20% of women working shifts said that the pattern they worked did not fit any of the descriptions presented to them, suggesting that there may be considerable variation for a substantial proportion of shift workers. **Table 6.5, Figure 6E**



## 6.4 Shift work and health

### 6.4.1 Self-reported general health

Both men and women in shift work were more likely than non shift workers to report fair or bad health, as shown in Figure 6F. Correspondingly, fewer reported very good health.

**Table 6.6, Figure 6F**

### 6.4.2 Longstanding illness

Shift workers were more likely than non shift workers to have one or more longstanding illnesses, with 40% of men and 45% of women in shift work with a longstanding illness compared with 36% and 39% respectively who worked non shift hours. There was little difference between shift workers and non shift workers in the proportion who had a non-limiting longstanding illness, but a higher proportion of shift workers had a limiting longstanding illness, as shown in Figure 6G.

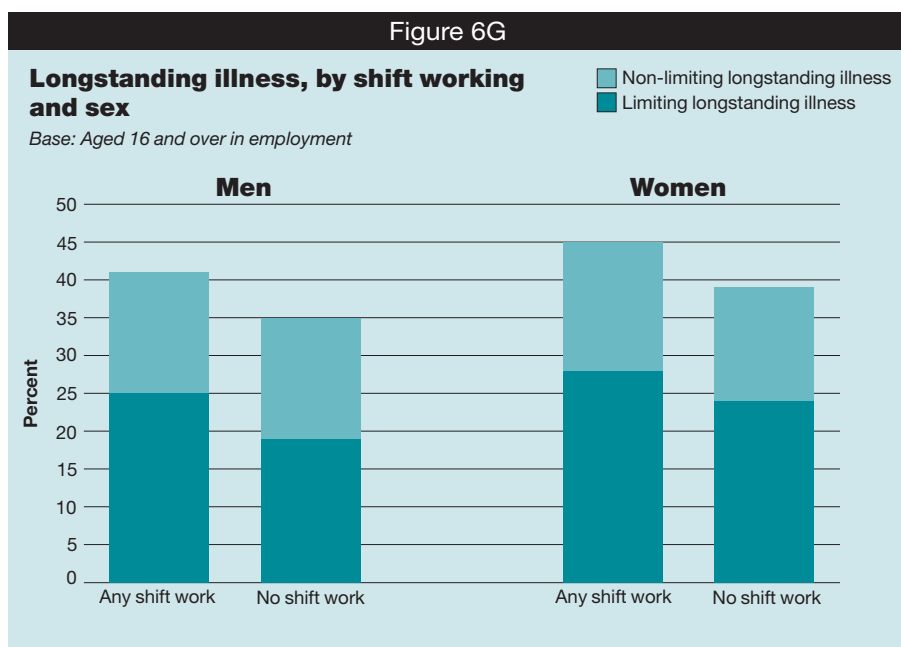
Shift workers were also slightly more likely than non shift workers to have more than one longstanding illness (19% of men, 21% of women among shift workers, 16% and 19% respectively among non shift workers).

**Table 6.7, Figure 6G**

Figure 6F



Figure 6G



### 6.4.3 Obesity and waist circumference

The mean body mass index (BMI) of shift workers was higher than for non shift workers, with a mean value of 27.8kg/m<sup>2</sup> for both men and women in shift work compared with 27.2kg/m<sup>2</sup> for men and 26.8kg/m<sup>2</sup> for women who did not work shifts. In line with this was the higher prevalence of obesity, with 30% of both men and women in shift work being obese compared with 24% of men and 23% of women who were not doing shift work.

Table 6.8, Figure 6H

The mean waist circumference of both men and women in shift work was significantly higher than of those who work non shift hours, 97.5cm and 89.4cm among shift workers compared with 96.7cm and 86.8cm respectively.

For men, low waist circumference is defined as less than 94cm, high as 94–102cm, and very high as greater than 102cm. For women, low waist circumference is less than 80cm, high is 80–88cm and very high is greater than 88cm.<sup>11</sup> Overall, 36% of men and 50% of women in shift work had a very high waist circumference compared with 32% of men and 41% of women who did not work shifts.

Table 6.9, Figure 6I

Figure 6H

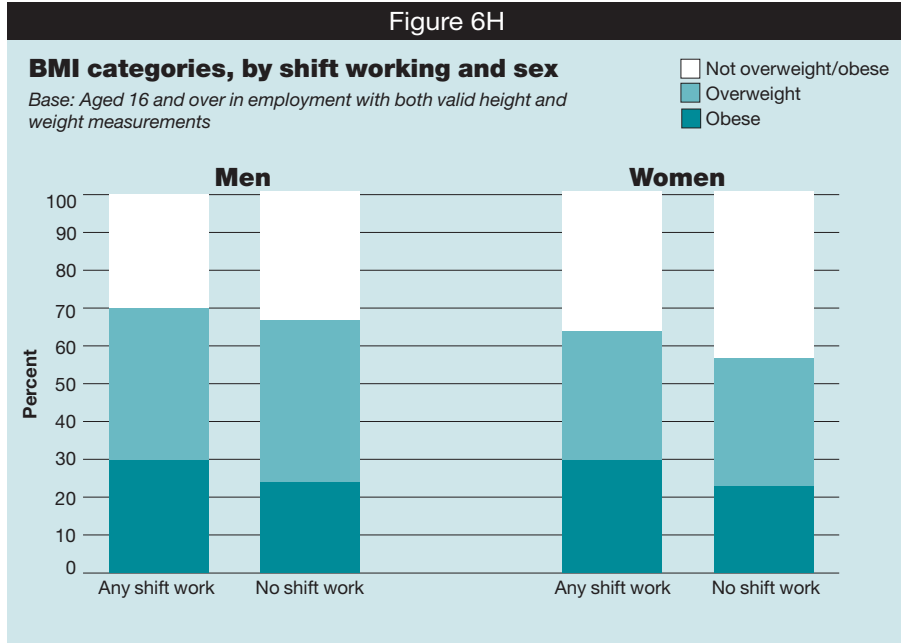
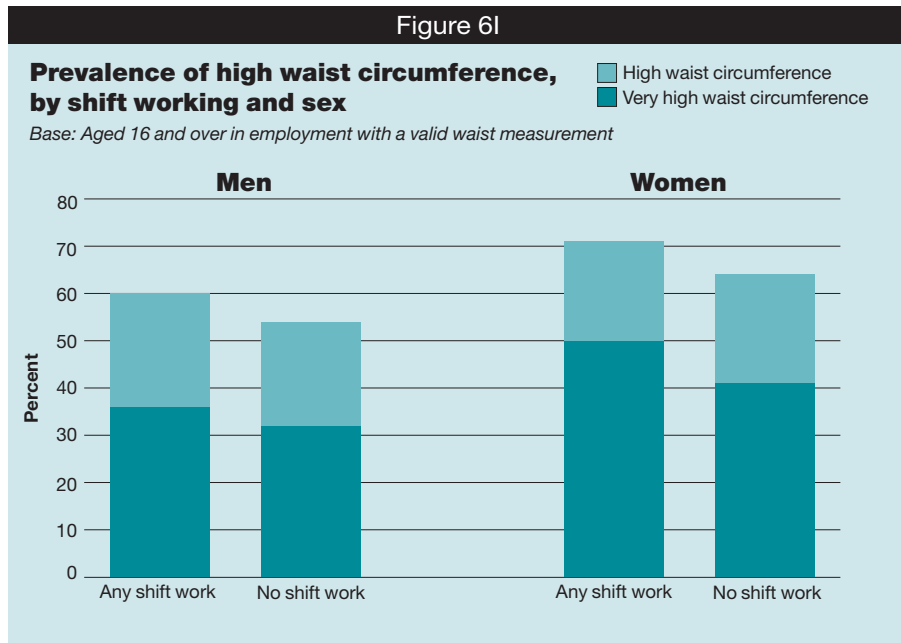


Figure 6I



#### 6.4.4 Hypertension

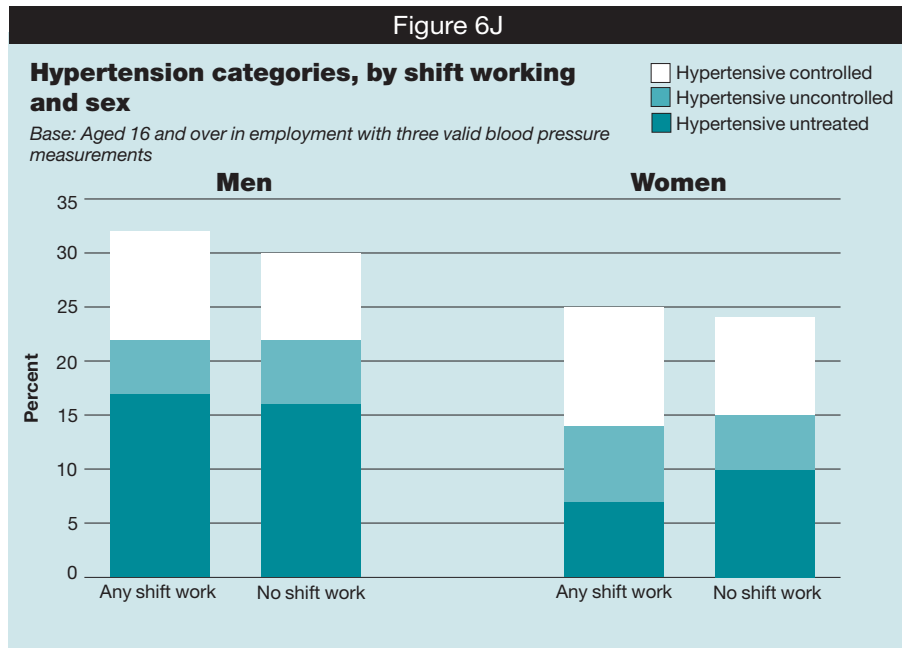
Blood pressure is measured during the nurse visit in the HSE. The threshold of 140/90mmHg used to define hypertension in HSE reports is in accordance with guidelines on hypertension management.<sup>12,13</sup> Adult participants were classified into one of four groups on the basis of their blood pressure readings and their current use of anti-hypertensive medication to identify, among those with hypertension, people with controlled, uncontrolled or untreated hypertension.<sup>14</sup>

Figure 6J shows the proportion of shift workers and non shift workers with different categories of survey-defined hypertension. Reflecting the picture for the population as a whole,<sup>15,16</sup> men were more likely than women to have hypertension overall, and more likely to have untreated hypertension. However, there was no significant difference in levels of hypertension between those doing shift work or not among either men or women.

Table 6.10, Figure 6J



Figure 6J



### 6.4.5 Diabetes

Participants were asked during the HSE interview whether they had doctor-diagnosed diabetes. In addition, glycated haemoglobin was measured for those who gave a blood sample during the nurse visit. Glycated haemoglobin is an indicator of the medium-term glucose level in the blood providing a measure of average blood sugar level, and has been suggested as a diagnostic or screening tool for diabetes. Those who had a glycated haemoglobin level of 48mmol/mol and who did not report a doctor diagnosis of diabetes have been classified as having undiagnosed diabetes.

Men and women in shift work were more likely than non shift workers to have diabetes (10% of both men and women in shift work, compared with 9% and 7% respectively of those not working shifts). Among shift workers 3% of men and 4% of women had undiagnosed diabetes, compared with 2% of both sexes among non shift workers.

Table 6.11

### 6.4.6 Cholesterol

For primary prevention, currently no specific cholesterol levels are indicated as thresholds for initiating treatment or as targets. For those with cardiovascular disease, diabetes or hypertension who are on drug treatment, an 'audit level' of 5mmol/l is suggested, with a target of below 4mmol/l. Results have been examined in this chapter for mean cholesterol levels, and for those below the 4.0mmol/l and 5.0mmol/l thresholds.

Total cholesterol levels were similar between shift workers and non-shift workers, with no significant differences in the mean level of cholesterol, nor in the proportions of those below the thresholds of 4.0mmol/l or 5.0mmol/l.

Table 6.12

### 6.4.7 Well-being

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)<sup>17</sup> is used to measure subjective well-being in the HSE. WEMWBS was developed to capture a broad concept of positive mental well-being, and has 14 statements which cover psychological functioning, cognitive-evaluative dimensions and affective-emotional aspects of well-being. For each statement participants indicate how often they have experienced this over the previous two weeks; responses are scored from 1 (for 'none of the time') to 5 (for 'all of the time'), and an aggregated Well-being Index is calculated, ranging from 14 to 70.

There was no significant variation in mean well-being scores between shift workers and non shift workers: the mean score was 51.5 for men and 50.9 for women doing shift work, and 51.7 for both men and women not doing shift work.

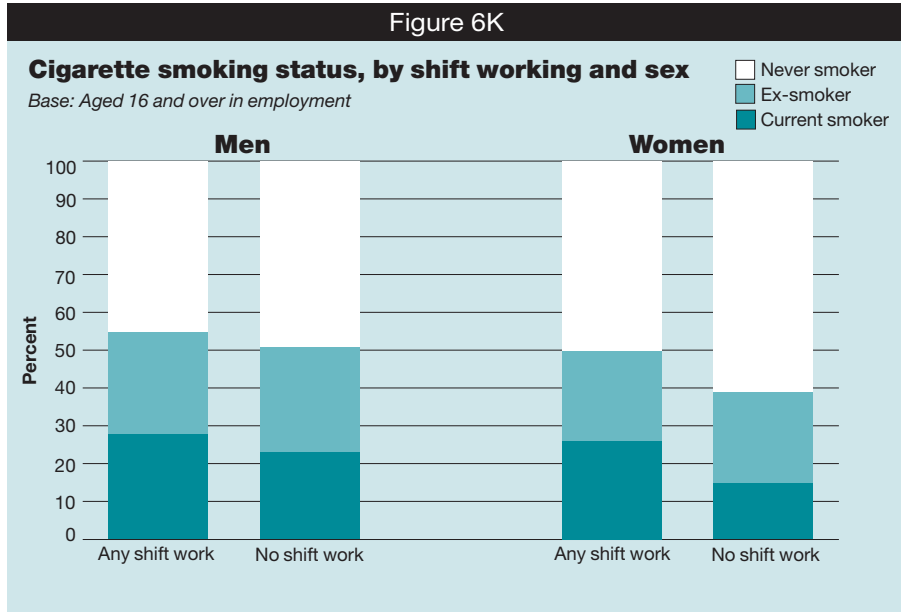
Table 6.13

## 6.5 Shift work and lifestyle factors

### 6.5.1 Smoking

Current cigarette smoking prevalence was higher among shift workers than non shift workers, with a larger difference among women than men (see Figure 6K). 28% of men in shift work currently smoked compared with 23% of men not working shifts. The difference was even greater for women where 26% of shift workers currently smoked compared with 15% of non shift workers.

Table 6.14, Figure 6K



### 6.5.2 Alcohol consumption

The proportion of both men and women who drank alcohol in the last year was slightly smaller among shift workers than among those who did not work shifts. 84% of men in shift work drank alcohol in the last year compared with 88% of those who never worked shifts; the equivalent figures for women were 81% and 83% respectively.

Figure 6L shows the proportions who drank at different levels of risk. It should be noted that thresholds for drinking at increased or higher risk are different for men and women. Among men, there was a slightly lower proportion who were drinking at increased risk levels (i.e. between 21 and 50 units per week) among those in shift work, 16% compared with 19% among non shift workers, although there was no difference in the small proportion drinking at higher risk levels. Among women, shift workers were not more likely than non shift workers to drink at increased or higher risk levels.

Table 6.15, Figure 6L

### 6.5.3 Fruit and vegetable consumption

Mean fruit and vegetable consumption was lower among shift workers compared with those not doing shift work. Mean daily fruit and vegetable consumption for men in shift work was 3.3 portions compared with 3.6 for those who did not work in shifts. Among women the equivalent means were 3.6 portions for those working shifts compared with 3.8 not working shifts.

Figure 6M shows the proportions of shift workers and non shift workers eating five or more portions of fruit and vegetables per day, thus meeting government recommendations. Shift workers were slightly less likely to eat five or more portions (24% of men, 26% of women, compared with 26% and 29% respectively among non shift workers).

Table 6.16, Figure 6M

Figure 6L

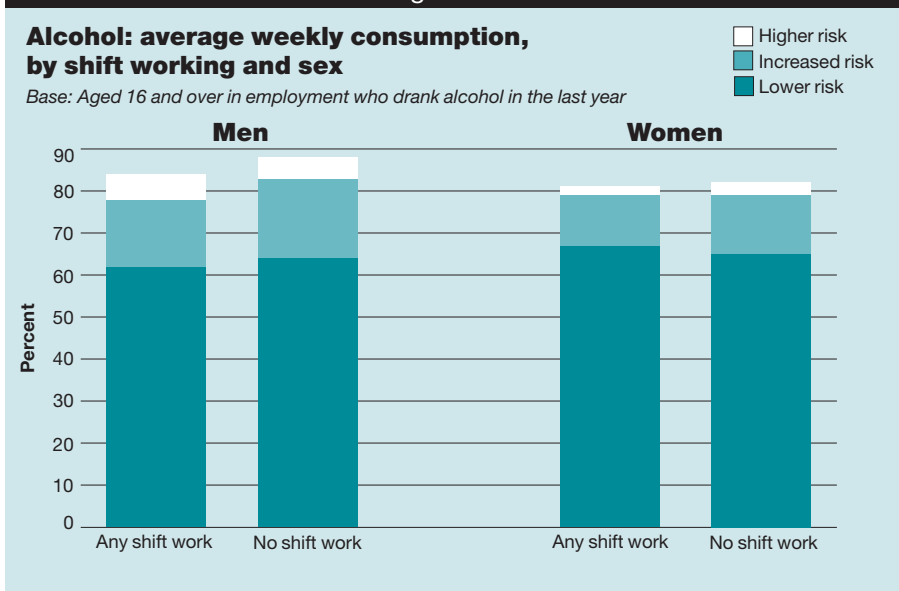
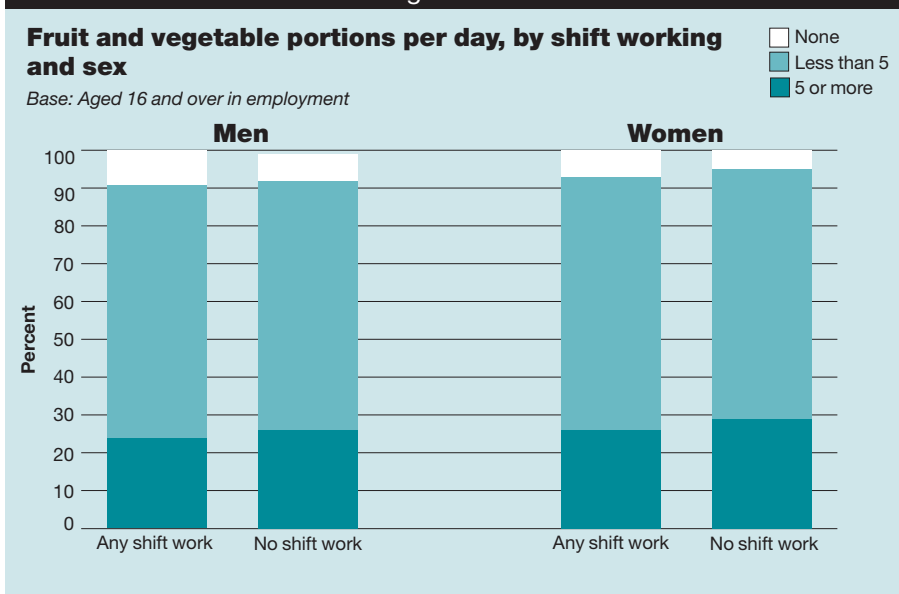


Figure 6M

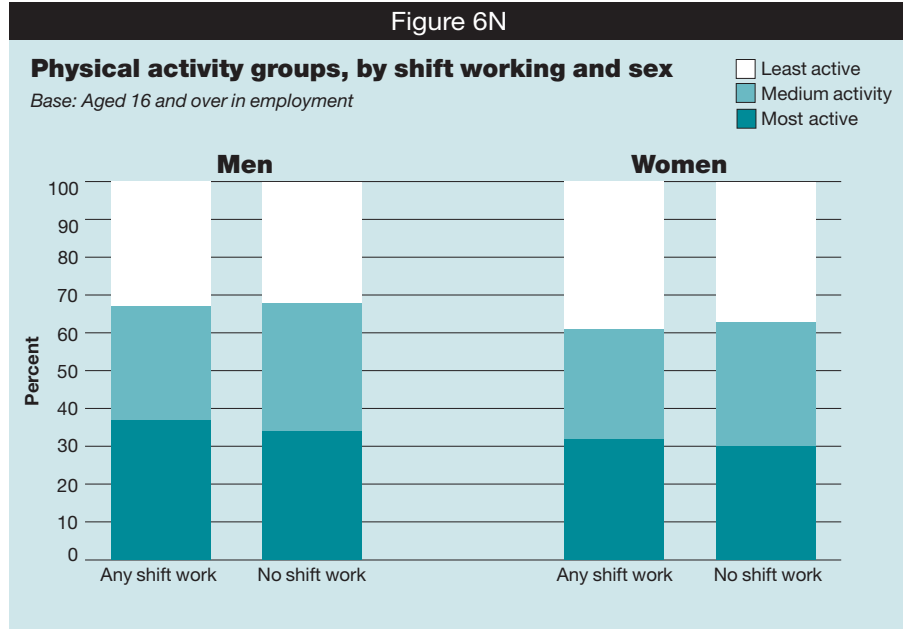


### 6.5.4 Physical activity

Participants completed the IPAQ (International Physical Activity Questionnaire), a very short set of questions aiming to establish broad physical activity levels.<sup>18</sup> Physical activity in bouts lasting 10 minutes or more has been included, and walking was excluded. Adults have been divided into thirds according to the total amount of weekly activity reported, and results in this chapter are presented for shift workers and non shift workers.

Overall among those in employment, women were less active than men as shown in Figure 6N; this reflects total population patterns. However, there were no significant differences in activity levels between shift workers and non shift workers in either sex. **Table 6.17, Figure 6N**

Figure 6N



## 6.6 Factors associated with fair or bad health among shift workers

This section presents the results of a logistic regression among adults aged 16 and over who did shift work; the analysis examines the association between the outcome variable, reporting fair or bad general health, and a number of potential risk factors (independent variables). The regression model indicates the contribution of each risk factor once other variables have been taken into account.

A forward stepwise selection procedure was carried out to identify variables or risk factors that contributed significantly to the regression model. The factors considered are shown below.

- Age
- Education status
- Equivalised household income
- NS-SEC (National Statistics Socio Economic Classification)<sup>19</sup>
- Occupation
- Industry.

In the stepwise selection procedure, NS-SEC, occupation and industry were significant factors. However, they were not found to be significant in the final model. These variables remained in the model as control variables, and so their effects are taken into account in the final model. Table 6.18 presents the results of the logistic regression including all risk factors significant for either men or women.

The risk factors indicate associations, not causes. Variations in risk are expressed as odds ratios (ORs), the degree to which the probability of the key outcome increases or decreases relative to a reference category which is given a value of 1. Odds ratios greater than 1 indicate higher odds of reporting fair or bad general health, while odds ratios below 1 indicate lower odds. The 95% confidence intervals are shown; if the confidence interval for a category does not include 1.0, it is significantly different from the reference category for the given variable.

Age, education status and income were significant factors associated with fair or bad health among shift workers.

Age had a greater effect for men than for women. The odds of reporting fair or bad general health increased with age, and among men those aged 35 and over had significantly greater

odds of fair or bad health than those aged 16-24. Men aged 65 and over were more than twelve times more likely than those aged 16-24 to report fair or bad general health (OR 12.64). Among women, only those aged 65 and over were significantly more likely to report that they had fair or bad health, being more than twice as likely to report fair or bad general health compared with those aged 16-24 (OR 2.55).

Education status was significantly associated with reporting fair or bad general health for both men and women. Men with no qualifications were twice as likely to report fair or bad general health, compared with men with a degree level qualification (OR 2.02). Among women, as levels of education qualifications decreased, the odds of reporting fair or bad general health increased. Women with no qualifications were almost four times as likely to report fair or bad general health (OR 3.99), compared with women with a degree level qualification.

The effect of income was different for men and women. The odds of reporting fair or bad general health were higher among men in the second, fourth and fifth quintiles, relative to the highest (OR 2.8, 3.02 and 6.35, respectively). Among women the odds of reporting fair or bad general health were twice as high among those in the lowest quintile relative to the highest (OR 2.2).

**Table 6.18**

## **6.7 Discussion**

### **6.7.1 Prevalence of shift work**

The reported prevalence of shift working ‘most of the time’ in this report is considerably higher than the prevalence reported in a review of shift working in the decade up to 2009, based on questions in the Labour Force Survey (LFS).<sup>1</sup> That study indicated that around 14-15% of the working population said that they worked shift patterns ‘most of the time’; this compares with 22% of men and 14% of women in the HSE in 2013. However, the latest Labour Force Survey results, for the three month period ending June 2013, show that around 21% of men and 18% of women did shift work.<sup>20</sup> For men, the proportion doing shift work was similar in these latest LFS results and the HSE, while the HSE recorded slightly fewer women shift workers.<sup>21</sup> It is possible that there have been changes in working patterns since 2009 because of the economic downturn, including an increase in shift working for men.

### **6.7.2 Association between shift work and health and lifestyle measures**

In line with previous evidence, there are clear indicators of poorer health and lifestyles amongst shift workers compared with non shift workers. Shift workers were more likely to have limiting longstanding illnesses, to be obese – including having high waist circumference – and to have diabetes. In terms of lifestyle behaviours, shift workers were more likely than those not doing shift work to be current smokers, and to eat fewer portions of fruit and vegetables daily. However, shift workers were slightly less likely to drink alcohol, although among those who did drink there were no major differences in patterns of average weekly consumption.

The HSE did not identify differences between shift workers and non shift workers for hypertension or mean cholesterol levels, although evidence from other sources has shown variation on such factors linked to cardiovascular risk.<sup>2,3</sup>

The most significant predictors of fair or bad health amongst shift workers were age, education and income. Living in a low income household, and having no qualifications or lower levels of education, were predictive of fair or bad health among both men and women in shift work. When comparing results with previous research, it is important to bear in mind that a large proportion of shift work research is undertaken in the manufacturing and manual labour sectors, while this analysis covers all industries where shift work occurs. However, once all other factors had been taken into account, industry or occupation did not emerge as significant in the regression model. This may in part be due to the challenge of

forming appropriate groups that are meaningful, but in a number of categories appropriate for this type of analysis.

Employers and staff are encouraged to implement policies and recommendations to combat negative health effects of shift work. For instance it is recommended that altering shift patterns are operated, which are maintained for a reasonably long period (e.g. 6 weeks) to improve employees' social life, but avoiding constant change of shift patterns to allow adjustments of the circadian rhythm. Awareness of the adverse effects of shift work may also encourage shift workers to adopt healthier behaviours such as eating more fruit and vegetables and staying physically active. This was not explored in this chapter as the Health Survey does not include questions about influences on health behaviours and choices.

Working time regulations (WTR)<sup>22</sup> provide guidance on working practice, and the Health Safety Executive and provides guidance for both employers and employees to reduce health risks associated with shift work.<sup>10</sup> This includes the right for shift workers regularly to receive free health assessments. Shift workers are advised to maintain a healthy balanced diet, particularly during periods of shift work, to keep physically active; to maintain social relations; and to avoid stimulants and sedatives to regulate sleep patterns as well as to reduce smoking and drinking alcohol.

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- 12 National Institute for Health and Clinical Excellence (NICE). *Hypertension: clinical management of primary hypertension in adults in primary care. NICE Clinical Guideline no 127*. NICE, London, 2011. [www.nice.org.uk/guidance/cg127](http://www.nice.org.uk/guidance/cg127)
- 13 Williams B, Poulter NR, Brown MJ et al. *Guidelines for management of hypertension: report of the fourth working party of the British Hypertension Society, 2004-BHS IV*. *J Hum Hypertens*. 2004;**18**:139-85. [www.bhsoc.org/pdfs/BHS\\_IV\\_Guidelines.pdf](http://www.bhsoc.org/pdfs/BHS_IV_Guidelines.pdf)
- 14 Adult participants were classified into one of four groups on the basis of their systolic (SBP) and diastolic (DBP) readings and their current use of anti-hypertensive medication. The last three categories together are considered 'hypertensive' for the purpose of this report.

Normotensive	SBP below 140mmHg and DBP below 90mmHg, <b>not</b> currently taking medicines specifically prescribed to treat high blood pressure
Hypertensive controlled	SBP below 140mmHg and DBP below 90mmHg, currently taking medicines specifically prescribed to treat their high blood pressure
Hypertensive uncontrolled	SBP at least 140mmHg and/or DBP at least 90mmHg, currently taking medicines specifically prescribed to treat their high blood pressure
Hypertensive untreated	SBP at least 140mmHg and/or DBP at least 90mmHg, <b>not</b> currently taking medicines specifically prescribed to treat their high blood pressure

- 15 HSE trend tables 2013. [www.hscic.gov.uk/pubs/hse2013trend](http://www.hscic.gov.uk/pubs/hse2013trend)
- 16 Knott C, Mindell J. *Hypertension*. Chapter 3 in Craig R, Mindell J (eds). *Health Survey for England 2011*. Health and Social Care Information Centre, Leeds, 2012. [www.hscic.gov.uk/pubs/hse11report](http://www.hscic.gov.uk/pubs/hse11report)
- 17 The Warwick-Edinburgh Mental Well-being Scale was funded by the Scottish Government National Programme for Improving Mental Health and Well-being, commissioned by NHS Health Scotland, developed by the University of Warwick and the University of Edinburgh, and is jointly owned by NHS Health Scotland, the University of Warwick and the University of Edinburgh.
- 18 In some previous HSE years very detailed questions have been included about physical activity, which allow estimates of the proportion of the population meeting government recommendations for physical activity. See Scholes S, Mindell J. *Physical activity in adults*. Chapter 2 in Craig R, Mindell J (eds). *Health Survey for England 2012*. Health and Social Care Information Centre, Leeds, 2013. The IPAQ does not provide the same level of detail, but can be used to classify the population into more active and less active groups. A comparison between IPAQ and the standard HSE questions indicates that the IPAQ results are more accurate for lower levels of activity.
- 19 NS-SEC is a social classification system that attempts to classify groups on the basis of employment relations, based on characteristics such as career prospects, autonomy, mode of payment and period of notice. It was introduced in 2001. Participants are assigned to an NS-SEC category based on the current or former occupation of the household reference person (the person in whose name the accommodation is held; if more than one, the person with the highest income; and if more than one, the oldest). For a full explanation of NS-SEC and its derivation see the Glossary in Volume 2 of this report, Methods and documentation at [www.hscic.gov.uk/pubs/hse2013](http://www.hscic.gov.uk/pubs/hse2013), and *The National Statistics Socio-economic Classification User Manual 2002*. ONS, 2002.
- 20 Office for National Statistics. *People in employment who do shift work by sex, three months ending June 2013*. ONS, Newport, 2014. Note that this published table is not seasonally adjusted, and does not specify whether people were doing shift work 'most of the time' or 'sometimes', though the results are comparable with the HSE results for doing shift work 'most of the time'. [www.ons.gov.uk/ons/about-ons/business-transparency/freedom-of-information/what-can-i-request/published-ad-hoc-data/labour/september-2014/index.html](http://www.ons.gov.uk/ons/about-ons/business-transparency/freedom-of-information/what-can-i-request/published-ad-hoc-data/labour/september-2014/index.html)
- 21 It is possible that the slight difference in question wording may have influenced results: the HSE question specified working 'outside the hours of 7am to 7pm' whereas this was not included in the LFS question.
- 22 The Working Time Regulations (WTR) are industry policies which implement the European Working Time Directive into GB law. See *The Working Time (Amendment) 2003 Regulations*. [www.legislation.gov.uk/ukxi/2003/1684/contents/made](http://www.legislation.gov.uk/ukxi/2003/1684/contents/made)

- 6.1 Proportion of people in employment who reported shift working, by age and sex
- 6.2 Proportion of people in employment who reported shift working (observed and age-standardised), by region and sex
- 6.3 Proportion of people in employment who reported shift working (age-standardised), by equivalised household income and sex
- 6.4 Proportion of people in employment who reported shift working (age-standardised), by Index of Multiple Deprivation (IMD) and sex
- 6.5 Type of shift work in main job, by age and sex
- 6.6 Self-reported general health (age-standardised), by shift working and sex
- 6.7 Longstanding illness (age-standardised), by shift working and sex
- 6.8 Body mass index (BMI), overweight and obesity prevalence (age-standardised), by shift working and sex
- 6.9 Waist circumference (age-standardised), by shift working and sex
- 6.10 Hypertension categories (age-standardised), by shift working and sex
- 6.11 Diabetes (age-standardised), by shift working and sex
- 6.12 Total cholesterol levels (age-standardised), by shift working and sex
- 6.13 WEMWBS mean scores (age-standardised), by shift working and sex
- 6.14 Cigarette smoking status (age-standardised), by shift working and sex
- 6.15 Alcohol consumption (age-standardised), by shift working and sex
- 6.16 Daily fruit and vegetable consumption (age-standardised), by shift working and sex
- 6.17 Physical activity (age-standardised), by shift working and sex
- 6.18 Factors associated with fair or bad self-reported health among those doing shift work

**Notes on the tables**

- 1. The group on which the figures in the table are based is stated at the upper left corner of the table.
- 2. The data in most tables have been weighted. See Volume 2, Chapter 7 of this report for more detail. Both unweighted and weighted sample sizes are shown at the foot of each table.
- 3. Apart from tables showing age breakdowns, data have been age-standardised to allow comparisons between groups after adjusting for the effects of any differences in their age distributions. See Volume 2, Chapter 8.4 of this report for more detail.
- 4. The following conventions have been used in tables:
  - no observations (zero value)
  - 0 non-zero values of less than 0.5% and thus rounded to zero
  - [ ] used to warn of small sample bases, if the unweighted base is less than 50. If a group's unweighted base is less than 30, data are normally not shown for that group.
- 5. Because of rounding, row or column percentages may not add exactly to 100%.
- 6. 'Missing values' occur for several reasons, including refusal or inability to answer a particular question; refusal to co-operate in an entire section of the survey (such as the nurse visit or a self-completion questionnaire); and cases where the question is not applicable to the participant. In general, missing values have been omitted from all tables and analyses.



Table 6.1

**Proportion of people in employment who reported shift working, by age and sex**

<i>Aged 16 and over in employment</i>						<i>2013</i>
<b>Whether do shift work<sup>a</sup></b>	<b>Age group</b>					<b>Total</b>
	16-24	25-34	35-44	45-54	55+	
	%	%	%	%	%	%
<b>Men</b>						
Most of the time	30	24	21	25	18	22
Occasionally	17	10	9	11	11	11
Never	53	65	69	64	71	67
<i>Any shift work</i>	47	35	31	36	29	33
<b>Women</b>						
Most of the time	21	17	15	14	10	14
Occasionally	16	8	7	8	7	8
Never	63	75	77	78	84	78
<i>Any shift work</i>	37	25	23	22	16	22
<i>Base (unweighted)</i>						
<i>Men</i>	240	523	616	701	1636	3716
<i>Women</i>	299	700	787	856	1836	4478
<i>Base (weighted)</i>						
<i>Men</i>	388	708	733	761	1422	4012
<i>Women</i>	401	703	721	754	1545	4124

<sup>a</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.2

**Proportion of people in employment who reported shift working (observed and age-standardised), by region<sup>a</sup> and sex**

Aged 16 and over in employment

2013

Whether do shift work <sup>b</sup>	Region								
	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	East of England	London	South East	South West
	%	%	%	%	%	%	%	%	%
<b>Men</b>									
<b>Observed</b>									
Most of the time	30	25	28	23	22	23	18	20	17
Occasionally	7	15	10	10	12	10	9	13	10
Never	62	61	62	67	66	67	73	67	73
Any shift work	38	39	38	33	34	33	27	33	27
<b>Standardised</b>									
Most of the time	32	25	29	24	24	23	19	21	18
Occasionally	7	15	10	10	14	11	9	13	11
Never	67	69	70	71	73	74	76	72	76
Any shift work	38	40	38	34	38	33	28	33	28
<b>Women</b>									
<b>Observed</b>									
Most of the time	20	14	16	15	11	13	11	16	14
Occasionally	8	9	7	9	9	7	9	7	7
Never	73	77	77	76	80	81	80	77	78
Any shift work	27	23	23	24	20	19	20	23	22
<b>Standardised</b>									
Most of the time	20	14	17	16	11	13	11	16	15
Occasionally	8	9	7	10	10	7	10	7	7
Never	72	77	76	75	79	80	79	76	78
Any shift work	28	23	24	25	21	20	21	24	22
<i>Base (unweighted)</i>									
Men	318	534	335	344	369	395	457	601	363
Women	386	625	424	418	433	476	544	706	466
<i>Base (weighted)</i>									
Men	200	544	382	362	422	446	587	673	396
Women	201	548	417	370	431	450	575	687	446

<sup>a</sup> Regions defined as the former Government Office Regions.<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.3

**Proportion of people in employment who reported shift working (age-standardised), by equivalised household income and sex**

Aged 16 and over in employment

2013

Whether do shift work <sup>a</sup>	Equivalised household income quintile				
	Highest	2nd	3rd	4th	Lowest
	%	%	%	%	%
<b>Men</b>					
Most of the time	12	22	24	31	31
Occasionally	9	9	11	11	12
Never	79	70	65	58	57
<i>Any shift work</i>	<i>21</i>	<i>30</i>	<i>35</i>	<i>42</i>	<i>43</i>
<b>Women</b>					
Most of the time	12	13	17	18	20
Occasionally	8	8	6	9	9
Never	81	79	78	73	72
<i>Any shift work</i>	<i>19</i>	<i>21</i>	<i>22</i>	<i>27</i>	<i>28</i>
<i>Base (unweighted)</i>					
<i>Men</i>	<i>690</i>	<i>676</i>	<i>557</i>	<i>571</i>	<i>498</i>
<i>Women</i>	<i>699</i>	<i>771</i>	<i>701</i>	<i>713</i>	<i>683</i>
<i>Base (weighted)</i>					
<i>Men</i>	<i>779</i>	<i>732</i>	<i>581</i>	<i>561</i>	<i>557</i>
<i>Women</i>	<i>671</i>	<i>725</i>	<i>642</i>	<i>620</i>	<i>599</i>

<sup>a</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.4

**Proportion of people in employment who reported shift working (age-standardised), by Index of Multiple Deprivation (IMD)<sup>a</sup> and sex**

Aged 16 and over in employment

2013

Whether do shift work <sup>b</sup>	IMD quintile				
	Least deprived	2nd	3rd	4th	Most deprived
	%	%	%	%	%
<b>Men</b>					
Most of the time	17	21	20	25	31
Occasionally	10	11	11	11	14
Never	72	68	68	64	54
<i>Any shift work</i>	28	32	32	36	46
<b>Women</b>					
Most of the time	11	14	13	17	17
Occasionally	6	8	8	9	11
Never	83	78	79	73	71
<i>Any shift work</i>	17	22	21	27	29
<i>Base (unweighted)</i>					
<i>Men</i>	762	829	807	676	642
<i>Women</i>	928	951	961	861	777
<i>Base (weighted)</i>					
<i>Men</i>	789	886	880	765	692
<i>Women</i>	851	883	893	812	686

<sup>a</sup> The Index of Multiple Deprivation 2010 combines a number of indicators, chosen to cover a range of economic, social and housing issues, into a single deprivation score at the small area level in England.

<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.5

**Type of shift work<sup>a</sup> in main job, by age and sex**

Aged 16 and over and do shift work

2013

Type of shift work	Age group			Total
	16-24	25-49	50+	
	%	%	%	%
<b>Men</b>				
Two-shift system with 'earlies' and 'lates'/double day shifts	15	15	14	15
Sometimes night and sometimes day shifts	16	15	12	14
Evening or twilight shifts	28	10	10	12
Night shifts	10	10	9	10
Three-shift working	1	10	13	10
Split shifts	5	7	5	6
Morning shifts	4	7	5	6
Continental shifts	-	3	3	2
Weekend shifts	7	2	1	2
Other type of shift work	14	21	27	23
<b>Women</b>				
Two-shift system with 'earlies' and 'lates'/double day shifts	18	17	19	18
Sometimes night and sometimes day shifts	16	20	14	17
Evening or twilight shifts	26	14	14	16
Night shifts	4	8	11	8
Three-shift working	4	9	6	7
Split shifts	6	6	8	7
Morning shifts	8	3	5	4
Continental shifts	-	1	0	1
Weekend shifts	4	2	1	2
Other type of shift work	15	21	21	20
<i>Base (unweighted)</i>				
<i>Men</i>	107	474	594	1175
<i>Women</i>	113	460	393	966
<i>Base (weighted)</i>				
<i>Men</i>	181	599	549	1329
<i>Women</i>	148	431	328	907

<sup>a</sup> Shift work defined as 'outside the hours of 7am to 7pm in your (main) job'. See Section 6.2.2 for definitions of the different types of shift work.

Table 6.6

**Self-reported general health (age-standardised), by shift working and sex**

Aged 16 and over in employment 2013

Self-reported general health	Men		Women	
	Any shift work <sup>a</sup>	Never does shift work	Any shift work <sup>a</sup>	Never does shift work
	%	%	%	%
Very good	32	36	30	36
Good	40	43	42	42
Fair	20	15	21	17
Bad	6	5	5	4
Very bad	2	1	2	2
<i>Very good/good</i>	<i>72</i>	<i>79</i>	<i>72</i>	<i>78</i>
<i>Bad/very bad</i>	<i>8</i>	<i>6</i>	<i>7</i>	<i>6</i>
<i>Base (unweighted)</i>	<i>1181</i>	<i>2535</i>	<i>966</i>	<i>3510</i>
<i>Base (weighted)</i>	<i>1335</i>	<i>2677</i>	<i>907</i>	<i>3215</i>

<sup>a</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.7

**Longstanding illness (age-standardised), by shift working and sex**

Aged 16 and over in employment 2013

Longstanding illness	Men		Women	
	Any shift work <sup>a</sup>	Never does shift work	Any shift work <sup>a</sup>	Never does shift work
	%	%	%	%
No longstanding illness	60	64	55	61
Non-limiting longstanding illness	16	16	17	15
Limiting longstanding illness	25	19	28	24
<i>Any longstanding illness</i>	<i>40</i>	<i>36</i>	<i>45</i>	<i>39</i>
One longstanding illness	22	19	23	20
More than one longstanding illness	19	16	21	19
<i>Base (unweighted)</i>	<i>1180</i>	<i>2533</i>	<i>967</i>	<i>3508</i>
<i>Base (weighted)</i>	<i>1334</i>	<i>2675</i>	<i>908</i>	<i>3214</i>

<sup>a</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.8

### Body mass index (BMI), overweight and obesity prevalence (age-standardised), by shift working and sex

Aged 16 and over in employment with both valid height and weight measurements

2013

BMI (kg/m <sup>2</sup> ) and BMI status (%) <sup>a</sup>	Men		Women	
	Any shift work <sup>b</sup>	Never does shift work	Any shift work <sup>b</sup>	Never does shift work
	%	%	%	%
Mean BMI (kg/m <sup>2</sup> )	27.8	27.2	27.8	26.8
Standard error of the mean	0.20	0.13	0.23	0.12
% Underweight	2	1	2	2
% Normal	28	33	34	42
% Overweight	40	43	34	34
% Obese, excluding morbidly obese	27	22	25	19
% Morbidly obese	2	1	5	4
% Overweight, including obese	70	66	63	56
% Obese	30	24	30	23
<i>Base (unweighted)</i>	989	2191	787	2931
<i>Base (weighted)</i>	1122	2326	737	2701

<sup>a</sup> WHO (World Health Organization) BMI classification ([www.who.int/bmi/index.jsp?introPage=intro\\_3.html](http://www.who.int/bmi/index.jsp?introPage=intro_3.html))  
 Underweight: less than 18.5kg/m<sup>2</sup>  
 Normal weight: 18.5 to less than 25kg/m<sup>2</sup>  
 Overweight: 25 to less than 30kg/m<sup>2</sup>  
 Obese, excluding morbidly obese: 30 to less than 40kg/m<sup>2</sup>  
 Morbidly obese: 40kg/m<sup>2</sup> or more  
 Overweight, including obese: 25kg/m<sup>2</sup> or more  
 Obese: 30kg/m<sup>2</sup> or more.

<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.10

### Hypertension categories (age-standardised), by shift working and sex

Aged 16 and over in employment with three valid blood pressure measurements

2013

Hypertension categories <sup>a</sup>	Men		Women	
	Any shift work <sup>b</sup>	Never does shift work	Any shift work <sup>b</sup>	Never does shift work
	%	%	%	%
Normotensive untreated	67	70	75	76
Hypertensive controlled	10	8	11	9
Hypertensive uncontrolled	5	6	7	5
Hypertensive untreated	17	16	7	10
<i>All with hypertension</i>	33	30	25	24
<i>Base (unweighted)</i>	689	1522	570	2145
<i>Base (weighted)</i>	763	1558	518	1897

<sup>a</sup> *Normotensive untreated*: Systolic blood pressure (SBP) less than 140mmHg and diastolic blood pressure (DBP) less than 90mmHg and not taking medicines prescribed for high blood pressure  
*Hypertensive controlled*: SBP less than 140mmHg and DBP less than 90mmHg and taking medicines prescribed for high blood pressure  
*Hypertensive uncontrolled*: SBP at least 140mmHg and/or DBP at least 90mmHg and taking medicines prescribed for high blood pressure  
*Hypertensive untreated*: SBP at least 140mmHg and/or DBP at least 90mmHg and not taking medicines prescribed for high blood pressure  
*All with hypertension*: SBP at least 140mmHg or DBP at least 90mmHg or taking medicines prescribed for high blood pressure.

<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.9

### Waist circumference (age-standardised), by shift working and sex

Aged 16 and over in employment with a valid waist measurement

2013

Waist circumference (cm) and high or very high waist circumference (%) <sup>a</sup>	Men		Women	
	Any shift work <sup>b</sup>	Never does shift work	Any shift work <sup>b</sup>	Never does shift work
	%	%	%	%
Mean waist circumference (cm)	97.5	96.7	89.4	86.8
Standard error of the mean	0.66	0.45	0.62	0.39
% with high waist circumference	24	22	21	23
% with very high waist circumference	36	32	50	41
<i>Base (unweighted)</i>	795	1762	654	2421
<i>Base (weighted)</i>	905	1843	601	2142

<sup>a</sup> National Institute for Health and Clinical Excellence. *Overweight and obese adults – lifestyle weight management (PH53)*. [www.nice.org.uk/PH53](http://www.nice.org.uk/PH53)  
 High waist circumference: 94-102cm in men and 80-88cm in women.  
 Very high waist circumference: greater than 102cm in men and greater than 88cm in women.

<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.11

**Diabetes (age-standardised), by shift working and sex**

Aged 16 and over in employment with valid glycated haemoglobin measurement 2013

Diabetes	Men		Women	
	Any shift work <sup>a</sup>	Never does shift work	Any shift work <sup>a</sup>	Never does shift work
	%	%	%	%
Doctor-diagnosed diabetes <sup>b</sup>	7	7	6	4
Undiagnosed diabetes <sup>c</sup>	3	2	4	2
All with diabetes	10	9	10	7
Base (unweighted)	594	1368	486	1797
Base (weighted)	680	1408	432	1579

<sup>a</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

<sup>b</sup> Excluding diabetes only during pregnancy among women.

<sup>c</sup> Glycated haemoglobin level of 48mmol/mol or more but no diagnosis of diabetes, indicating undiagnosed diabetes.

Table 6.12

**Total cholesterol levels (age-standardised), by shift working and sex**Aged 16 and over in employment with a valid total cholesterol measurement<sup>a</sup> 2013

Total cholesterol	Men		Women	
	Any shift work <sup>b</sup>	Never does shift work	Any shift work <sup>b</sup>	Never does shift work
	%	%	%	%
Mean (mmol/l)	5.0	5.1	5.2	5.2
Standard error of the mean	0.05	0.04	0.05	0.03
10th centile (mmol/l) <sup>c</sup>	3.6	3.8	3.8	3.8
90th centile (mmol/l)	6.4	6.6	6.8	6.7
% below 4.0 mmol/l <sup>d</sup>	18	15	13	12
% below 5.0 mmol/l <sup>d</sup>	48	47	48	44
Base (unweighted)	608	1389	489	1810
Base (weighted)	691	1434	434	1593

<sup>a</sup> Including those taking lipid-lowering drugs.

<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

<sup>c</sup> Centiles are values of a distribution that divide it into 100 equal parts. For example, the 10th centile is the value of a distribution where 10% of the cases have values at or below the 10th centile and 90% have values above it. The 50th centile is the median.

<sup>d</sup> For primary prevention, currently no specific cholesterol levels are indicated as thresholds for initiating treatment nor as targets. For those with CVD, diabetes or hypertension who are on drug treatment, an 'audit level' of 5mmol/l is suggested, with a target of below 4mmol/l, so these levels are shown here.

Table 6.13

**WEMWBS<sup>a</sup> mean scores (age-standardised), by shift working and sex**

Aged 16 and over in employment 2013

WEMWBS score	Men		Women	
	Any shift work <sup>b</sup>	Never does shift work	Any shift work <sup>b</sup>	Never does shift work
	%	%	%	%
Mean	51.5	51.7	50.9	51.7
Standard error of the mean	0.31	0.21	0.31	0.17
Median	53	53	51	52
10th centile <sup>c</sup>	51.0	52.0	51.0	52.0
90th centile	62.0	61.0	61.0	61.0
Base (unweighted)	1005	2246	869	3168
Base (weighted)	1145	2375	817	2916

<sup>a</sup> The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

<sup>c</sup> Centiles are values of a distribution that divide it into 100 equal parts. For example, the 10th centile is the value of a distribution where 10% of the cases have values at or below the 10th centile and 90% have values above it. The 50th centile is the median.

Table 6.14

**Cigarette smoking status (age-standardised), by shift working and sex**

Aged 16 and over in employment 2013

Cigarette smoking status <sup>a</sup>	Men		Women	
	Any shift work <sup>b</sup>	Never does shift work	Any shift work <sup>b</sup>	Never does shift work
	%	%	%	%
Current smoker	28	23	26	15
Ex-smoker	27	28	24	24
Never smoker	45	49	50	61
Base (unweighted)	1174	2529	962	3503
Base (weighted)	1324	2669	2136	6032

<sup>a</sup> Ex-smoker: used to smoke cigarettes regularly; Never smoker: never smoked cigarettes regularly.

<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.15

**Alcohol consumption (age-standardised), by shift working and sex**

Aged 16 and over in employment 2013

Alcohol drunk in the last year/ estimated weekly consumption <sup>a</sup>	Shift working	
	Any shift work <sup>b</sup>	Never does shift work
	%	%
<b>Men</b>		
No alcohol at all in the last year/ Non-drinker	16	12
Drank alcohol in the last year	84	88
<b>Average weekly consumption:</b>		
Up to 21 units per week (lower risk)	62	64
More than 21, up to 50 units (increased risk)	16	19
More than 50 units (higher risk)	6	5
<b>Women</b>		
No alcohol at all in the last year/ Non-drinker	19	17
Drank alcohol in the last year	81	83
<b>Average weekly consumption:</b>		
Up to 14 units per week (lower risk)	67	65
More than 14, up to 35 units (increased risk)	12	14
More than 35 units (higher risk)	2	3
<i>Base (unweighted)<sup>c</sup></i>		
Men	1141	2483
Women	945	3441
<i>Base (weighted)</i>		
Men	1281	2624
Women	886	3150

<sup>a</sup> Note different numbers of units per week for risk levels for men and women.

<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

<sup>c</sup> Bases shown are for whether drank alcohol in the last year; bases for units consumed differ but are of a similar magnitude.

Table 6.16

**Daily fruit and vegetable consumption (age-standardised), by shift working and sex**

Aged 16 and over in employment 2013

Portions per day	Men		Women	
	Any shift work <sup>a</sup>	Never does shift work	Any shift work <sup>a</sup>	Never does shift work
	%	%	%	%
None	9	7	7	5
Less than 1 portion	3	2	2	3
1 portion or more but less than 2	18	18	16	14
2 portions or more but less than 3	16	16	17	18
3 portions or more but less than 4	17	17	19	18
4 portions or more but less than 5	13	13	13	14
5 portions or more	24	26	26	29
Mean	3.3	3.6	3.6	3.8
Standard error of the mean	0.08	0.07	0.10	0.05
Median	3.0	3.0	3.2	3.3
<i>Base (unweighted)</i>				
	1180	2535	968	3507
<i>Base (weighted)</i>				
	1334	2677	909	3213

<sup>a</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

Table 6.17

**Physical activity (age-standardised), by shift working and sex**

Aged 16 and over in employment 2013

Activity levels <sup>a</sup>	Men		Women	
	Any shift work <sup>b</sup>	Never does shift work	Any shift work <sup>b</sup>	Never does shift work
	%	%	%	%
Most active third	37	34	32	30
Middle third	30	34	29	33
Least active third	33	32	39	37
<i>Base (unweighted)</i>				
	973	2168	823	3034
<i>Base (weighted)</i>				
	1104	2292	770	2793

<sup>a</sup> Activity levels based on the IPAQ (International Physical Activity Questionnaire). All adult participants have been divided into thirds according to the total amount of weekly activity reported, and results in this table are presented for shift workers and non shift workers in employment.

<sup>b</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.



Table 6.18

**Factors associated with fair or bad self-reported health among those doing shift work<sup>a</sup>**

Aged 16 and over and do shift work

2013

Independent variable	N	Odds ratio	95% C.I. <sup>c</sup>		Independent variable	N	Odds ratio	95% C.I. <sup>c</sup>	
			Lower	Upper				Lower	Upper
<b>Men</b> Base (weighted)	1,181				<b>Women</b> Base (weighted)	966			
<b>Age (p&lt;0.001)</b>					<b>Age (p=0.003)</b>				
16-24 <sup>c</sup>	107	1			16-24 <sup>c</sup>	113	1		
25-34	176	2.16	0.93	5.03	25-34	177	0.76	0.39	1.52
35-44	186	4.16	1.79	9.70	35-44	178	1.42	0.71	2.84
45-54	238	5.89	2.56	13.54	45-54	197	1.45	0.75	2.80
55-64	188	9.09	4.05	20.42	55-64	127	1.94	0.98	3.81
65+	286	12.64	5.51	29.00	65+	174	2.55	1.26	5.17
<b>Education status (p=0.022)</b>					<b>Education status (p=0.001)</b>				
Degree or equivalent <sup>c</sup>	205	1			Degree or equivalent <sup>c</sup>	209	1		
Below degree	647	1.33	0.79	2.24	Below degree	566	2.14	1.15	3.95
No qualifications	329	2.02	1.13	3.59	No qualifications	191	3.99	1.88	8.45
<b>Equivalised household income (p&lt;0.001)</b>					<b>Equivalised household income (p&lt;0.001)</b>				
Highest quintile <sup>c</sup>	148	1			Highest quintile <sup>c</sup>	120	1		
2nd quintile	202	2.80	1.50	5.21	2nd quintile	162	0.59	0.29	1.17
3rd quintile	182	1.81	0.91	3.63	3rd quintile	142	0.77	0.39	1.53
4th quintile	205	3.02	1.58	5.77	4th quintile	176	0.85	0.44	1.66
Lowest quintile	205	6.35	3.24	12.47	Lowest quintile	187	2.20	1.12	4.32
Not stated	239	2.51	1.31	4.82	Not stated	179	0.83	0.41	1.68

<sup>a</sup> Defined as 'outside the hours of 7am to 7pm in your (main) job'.

<sup>b</sup> Confidence interval. If the confidence interval for a category does not include 1.0, the category is significantly different from the reference category for the given variable.

<sup>c</sup> Reference category.